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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,538	01/24/2002	Anit Lohtia	NORT-0105-US	6051

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EXAMINER

DAO, MINH D

ART UNIT	PAPER NUMBER
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2682

DATE MAILED: 05/24/2004

3

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/056,538

Applicant(s)

LOHTIA ET AL.

Examiner

MINH D DAO

Art Unit

2682

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 17-23 is/are rejected.
- 7) ☒ Claim(s) 16 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1,2,8,9,12,13,18-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ladue (US Patent 6,070,070) in view of Jackson et al. (US Patent 6,023,460).

Regarding claim 1, Ladue teaches a method for use in a mobile communications network (see fig. 2), comprising: for a first cell segment, allocating one of the carrier

Art Unit: 2682

frequencies in the band for communicating beacon control signaling (col. 25, lines 14-16). However, Ladue fails to teach that for another cell segment, allocating the one of the carrier frequencies to carry bearer traffic. Jackson, in an analogous art, teaches the assignment of control channel as voice channel (col. 10, lines 41-46). In addition, when the frequency pattern repeats, it should be safe to reuse the same frequencies again (for control and traffic channels). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the teaching of Jackson to Ladue in order to improve the capacity of the system by using the control channel as traffic voice channel as suggested by Jackson (col. 10, lines 41-41-43).

Still regarding claim 1, the combination of the teachings of Ladue and Jackson fails to teach defining a band of carrier frequencies for the mobile communications Network. However, it's been known in the art that the operating frequency band of certain cellular system must be defined and allocated by the FCC, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to define a band of carrier frequencies for the mobile communications Network to operate on complying with the standards set by the FCC.

Regarding claim 2, the combination of the teachings of Ladue and Jackson teaches that the method of claim 1, further comprising allocating a plurality of carrier frequencies to the first cell segment, wherein the one carrier frequency for communicating beacon

control signaling is part of the plurality of carrier frequencies allocated to the first cell segment (Reference Ladue, col. 25, lines 14-16).

Regarding claim 8, the combination of the teachings of Ladue and Jackson teaches the method of claim 1, wherein allocating the one carrier frequency for communicating beacon control signaling comprises allocating the one carrier frequency for communicating a broadcast control channel (Reference Ladue, col. 25, lines 14-16; it is known in the art that the function of the control channel is to broadcast and communicate the "overhead" information between mobile stations and serving cell site.).

Regarding claim 9, the combination of the teachings of Ladue and Jackson teaches the method of claim 8, wherein defining the band of carrier frequencies for the mobile communications network comprises defining the band of carrier frequencies for at least one of the following networks: a Global System for Mobile 4 (GSM) network; a General Packet Radio Service (GPRS) network; an Enhanced GPRS (EGPRS) network; and a Global System for Mobile/Enhanced Data Rate for Global Evolution Radio Access Network (GERAN) (these communication networks represent and read on the FCC standards mentioned above, accordingly, claim 9 is rejected for the same reason as that of claim 1).

Regarding claim 12, the claim has the same limitations as that in claim 1 therefore is interpreted and rejected for the same reason set forth in claim 1.

Regarding claim 13, the claim has the same limitations as that in claim 2 therefore is interpreted and rejected for the same reason set forth in claim 2.

Regarding claim 18, the claim has the same limitation as that in claim 8 therefore is interpreted and rejected for the same reason set forth in claim 8.

Regarding claim 19, the claim has the same limitation as that in claim 9 therefore is interpreted and rejected for the same reason set forth in claim 9.

Regarding claim 20, the claim has the same limitation as that in claim 1 therefore is interpreted and rejected for the same reason set forth in claim 1 (see fig. 2 of reference Ladue, in this case, item 171 (PSTN) reads on the interface, and item 77 (CPU) reads on the processor of the present invention).

Regarding claim 21, the claim has the same limitation as that in claim 3 therefore is interpreted and rejected for the same reason set forth in claim 3.

Regarding claim 22, the claim has the same limitation as that in claim 6 therefore is interpreted and rejected for the same reason set forth in claim 6.

Regarding claim 23, the claim has the same limitation as that in claim 8 therefore is interpreted and rejected for the same reason set forth in claim 8.

2. Claims 10,11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ladue (US Patent 6,070,070) in view of Jackson et al. (US Patent 6,023,460) and further in view of Chawla et al. (US Patent 6,137,787).

Regarding claim 10, the combination of the teachings of Ladue and Jackson teaches defining a band of carrier frequencies for the mobile communications network; for a first cell segment, allocating one of the carrier frequencies in the band for communicating beacon control signaling; and for another cell segment, allocating the one of the carrier frequencies to carry bearer traffic. However, the combination of the teachings of Ladue and Jackson fails to teach providing a fractional reuse pattern in the mobile communications network. Chawla, in an analogous art, teaches as assign of the fractional reuse pattern in the mobile communications network (col. 4, lines 22-42). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the teaching of Chawla to Ladue and Jackson in order to improve the system capacity.

Regarding claim 11, the combination of the teachings of Ladue, Jackson and Chawla teaches providing the fractional reuse pattern comprises providing one of a 1x3 fractional reuse pattern and a 1 x 1 fractional reuse pattern (Reference Chawla, col. 2, lines 66-77; col. 3, lines 1-21).

3. Claims 3-7,14,15,17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ladue (US Patent 6,070,070) in view of Jackson et al. (US Patent 6,023,460) and further in view of Niecyporowicz et al. (US 2002/0097704 A1).

Regarding claim 3, the combination of the teachings of Ladue and Jackson teaches defining a band of carrier frequencies for the mobile communications network; for a first cell segment, allocating one of the carrier frequencies in the band for communicating beacon control signaling; and for another cell segment, allocating the one of the carrier frequencies to carry bearer traffic. However, the combination of the teachings of Ladue and Jackson fails to teach defining a hopping sequence among the allocated plurality of carrier frequencies. Niecyporowicz, in an analogous art, teaches a hopping sequence among the allocated plurality of carrier frequencies and excluding the one carrier frequency for communicating beacon control signaling from the hopping sequence (col. 1, section [0010]). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the teaching of Niecyporowicz to Ladue and Jackson in order to prevent interference signal from degrading the performance of the system as suggested by Niecyporowicz (col. 1. section [0009]).

Regarding claim 4, the combination of the teachings of Ladue, Jackson and Nieczyporowicz teaches that the method of claim 3, further comprising communicating traffic channels carrying the bearer traffic on carrier frequencies assigned according to the hopping sequence (col. 1, section [0010]).

Regarding claim 5, the combination of the teachings of Ladue, Jackson and Nieczyporowicz fails to teach that the method of claim 4, further comprising constantly communicating the beacon control signaling at the one carrier frequency. However, the system must, at all time, maintain the communication with mobile stations regarding communicating the "overhead" information via the beacon control channel with mobile stations, therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to design the communication system so that it would continuously communicate with mobile stations through the beacon control channel for the purpose of generally keeping track of the actions of the mobiles.

Regarding claim 6, the claim has the same limitation as that in claim 10 therefore is interpreted and rejected for the same reason set forth in claim 10.

Regarding claim 7, the claim has the same limitation as that in claim 11 therefore is interpreted and rejected for the same reason set forth in claim 11.

Regarding claims 14 and 15, the claims have the same limitation as that in claim 3 therefore is interpreted and rejected for the same reason set forth in claim 3.

Regarding claim 17, the claim has the same limitation as that in claim 6 therefore is interpreted and rejected for the same reason set forth in claim 6.

Allowable Subject Matter

4. Claim 16 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 16, the combination of the teachings of Ladue, Jackson and Nieczyporowicz teaches the limitations as that in claim 15. However, the combination fails to teach that the article of claim 15, wherein the instructions when executed cause the system to further exclude carrier frequencies used for beacon control signaling in neighboring cell segments of the first cell segment from the hopping sequence. As specified in the claim.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Haartsen (US 6,473,412) discloses Uncoordinated Frequency Hopping Cellular System.
- b. Dent (US Patent 5,425,049) discloses Staggered Frequency Hopping Cellular Radio System.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to MINH D DAO whose telephone number is 703-305-5589. The examiner can normally be reached on 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, VIVIAN C CHIN can be reached on 703-308-6739. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2682

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Minh Dao
Examiner
Art Unit 2682
May 8, 2004 *md*


LEE NGUYEN
PRIMARY EXAMINER